REMARKS

Claims 19, 21, 22, 29, 31, 33, 35 and 40-48 are pending in this application.

Examiners Saha and Mayes are thanked for the courtesies extended during the personal interview conducted on September 15, 2009. Applicant's separate record of the substance of that interview is incorporated into the following discussions.

Claim Rejections under 35 USC §103

Claim 19 was rejected under 35 U.S.C. §103(a) as being unpatentable over Tour et al. US 5,904,852 (hereafter US '852) in view of Konarev et al. (Mol Complexes, Jour Solid State., 168, 2002, 474-485) (hereafter JSC '474). Applicants' respectfully traverse this rejection.

Claim 19 of the present application is directed towards forming an amine complex which is insoluble in the solvent and separating the complex from a solution.

Chromatography, *i.e.*, chromatography separation, is a technique for separating a component and/or components from a mixture of components using the difference in the distribution of components between the two phases. Chromatography separates a component and/or components of interest using the following features: A stationary phase and a mobile phase which flows through the stationary phase are at equilibrium, a sample supplied to the system is entrained in the mobile phase, and the components in the sample move through the system with certain velocity and distribution associated with a spread factor.

In order to isolate the component and/or components from the sample, the sample needs to be dissolved in the mobile phase. If the sample is not dissolved in the mobile phase, the

sample cannot be conveyed by the mobile phase, and thus separation of the component and/or components by chromatography is impossible.

Example 2 of US '852 discloses that a solution of crude fullerenes was slowly poured onto the top of the PDBS/DVB stationary phase. See Col.6, lines 48-52. Subsequently US '852 states that most of the >C100 fullerenes were not present in this sample since their solubility in toluene is minimal. See Col.6, lines 55-57.

In other words, a component/components which does/do not dissolve in a solution cannot be a target of the chromatography separation according to US '852. This is clear from the disclosure of US '852 and this would have been obvious to a person of ordinary skill in the field of chromatography separation.

US '852 discloses that the crude fullerenes are separated by chromatography. Thus, the crude fullerenes must be dissolved in a solvent system. US '852 discloses that aromatic solvents such as benzene, toluene, chlorobenzene and trimethylbenzene are used (as the solvent system). See US '852, Col. 5, lines 16-35.

The solvent system disclosed by JSC '474 includes benzene, toluene and chlorobenzene. See JSC '474, page 476, lines 7-22. Thus, JSC '474 discloses the same solvent system as US '852.

JSC '474 states that "All the complexes were obtained (50-80% yield) by evaporation of the solutions of fullerenes and corresponding amine under argon during 7-14 days." See JSC '474, page 475, Table 1. Based on this disclosure of JSC '474, a skilled artisan would have

understood at the time of invention that the amine and fullerene complexes were dissolved in solutions and that benzene, chlorobenze and toluene were used as the solvents.

A skilled artisan may understand from the disclosure of JSC '474 that the fullerene-amine complex was dissolved in toluene and chlorobenze and these solvents are the same as the solvent system of US '852.

Moreover, one of ordinary skill in the art would understand from the disclosure of JSC '474 that if the amine-fullerene complex was not dissolved in the solution, the separation of complex would have been carried out by a simpler method, such as filtration. A simpler separation method, such as filtration, would not have been as time-consuming as an evaporation method.

In addition, the amine complex which is insoluble in the solvent of the presently claimed method could not be subjected to chromatography separation, in view of the principle of the chromatography separation method of US '852. Thus, even if a person of ordinary skill in the art considered separating the complex of JSC '474 by the chromatography separation method of US '852, one would not achieve the presently claimed method of fullerene separation.

US '852 teaches that the "insoluble substances" need to be removed in advance, since they cannot be separated by chromatography. If insoluble substances are poured onto the top of the column, the column will be polluted. Thus, a skilled artisan would be encouraged by the disclosure of US '852 to remove the presently claimed "amine complex which is insoluble in solvent" and not place the insoluble substances in a chromatography column.

Namely, US '852 focuses on the chromatography separation technique which requires removal of insolubles. It is clear that the disclosure of US '852 is contrary to or at least teaches away from the requirements of the presently claimed invention. Therefore, the Examiner's articulated reasons for combining the disclosure of US '852 with JSC '474 do not support a legal conclusion of obviousness.

Additionally, even if US '852 were combined with JSC '474, as indicated by the Examiner, it is clear that the sample would include insolubles. These insolubles could not be separated by chromatography since they would pollute the column. Thus, the presently claimed invention cannot be separated by column chromatography (US '852, Example 2, Col.6, lines 55-57). The present invention cannot be attained from the combination of US '852 with JSC '474.

From the above discussion, it is clear that the obviousness rejection lacks sufficient basis. That is, the cited art appears to be illogically combined, even though one of ordinary skill in the art would have no motivation and/or reason for combining these references. Applicants respectfully request reconsideration and withdrawal of the rejection.

Furthermore, the complexes of fullerenes with amines disclosed in JSC '474 are distinct from "the amine complex which is insoluble in the solvent" as recited in claim 19 of the present invention.

JSC '474 states that "the complexes of fullerenes with various amines were prepared by gradual evaporation of the solutions of fullerenes and corresponding amine under argon." See JSC '474, page 474, paragraph "Syntheses", lines 1-4. If complexes of fullerenes with amines in

JSC '474 are "insoluble," evaporation of the solutions is not required, but simple separation methods such as centrifugation and filtration are sufficient for separation of the fullerenes. However, JSC '474 employs the complicated solvent evaporation. Thus, the complexes of fullerenes with amines in JSC '474 are soluble in a solvent, and the fullerenes can be isolated by evaporating the solvent. In other words, the complexes of fullerenes with amines in JSC' 474 are different from the 'insoluble complexes" in the present invention. Therefore, JSC'474 does not disclose a complex of a fullerene with an amine as in the presently claimed method. It is clear that the combination of US '852 and JSC '474 does not achieve the same structure as the presently claimed invention.

The amines in the presently claimed method are not the same as the amines disclosed by JSC '474. This is clear from the description and experimental data provided in the present specification. The fullerene-amine complex formed in the presently claimed method can be separated by centrifugation and filtration. This is because the fullerene-amine complex formed in the presently claimed method is insoluble in solvent.

The method presently claimed can be achieved since the complex does not dissolve in chlorobenzene, which is a solvent in JSC '474 and US '852.

Finally, the complex obtained by evaporation in JSC '474, may be dissolved again in the solvent, if a predetermined amount of the solvent were added to the complex. This may not be the case with the complex of the presently claimed method since the amine complex is insoluble in solvent.

Favorable reconsideration is earnestly solicited.

Claim Rejections under 35 USC §103

Claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over US '852 in view of JSC '474 as applied to claim 19, further in view of Bhasikuttan et al. (Interaction of Triplet State, Journal of Photochemistry and Photobiology, 143, 2001, 17-21) (hereafter JPP '17). Applicants respectfully traverse this rejection.

US '852 in view of JSC '474 does not render the presently claimed invention obvious. The deficiencies of US '852 in view of JSC '474 are not overcome by the disclosure of JPP '17.

Thus, the combined reading of US '852 in view of JSC '474 in view of JPP '17 fails to render the presently claimed invention obvious.

Favorable reconsideration is earnestly solicited.

Claim Rejections under 35 USC §103

Claim 22 was rejected under 35 U.S.C. §103(a) as being unpatentable over US '852 in view of JSC '474 and JPP '17 as applied to claims 19 and 21, and further in view of Choudhury et al. WO2002/079142 (hereafter WO '142). Applicants respectfully traverse this rejection.

US '852 in view of JSC '474 does not render the presently claimed invention obvious. The deficiencies of US '852 in view of JSC '474 are not overcome by the disclosure of WO '142.

Thus, the combined reading of US '852 in view of JSC '474 in view of WO '142 fails to render the presently claimed invention obvious.

Favorable reconsideration is earnestly solicited.

Claim Rejections under 35 USC §103

Claims 29, 31, 33 and 35 were rejected under 35 U.S.C. §103(a) as being unpatentable over US '852 in view of JSC '474 and further in view of Nakamura et al. US 6,765,098 (hereafter US '098).

US '852 in view of JSC '474 does not render the presently claimed invention obvious. The deficiencies of US '852 in view of JSC '474 are not overcome by the disclosure of US '098.

Thus, the combined reading of US '852 in view of JSC '474 in view of US '098 fails to render the presently claimed invention obvious.

As established above, the presently claimed invention is not rendered obvious by any of the cited art, either independently or in combination with one another. For at least the reasons herein presented, Applicants respectfully request that all rejections be withdrawn and the present application be found allowable.

For at least the foregoing reasons, the claimed invention distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action by applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone applicants' undersigned attorney.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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Enclosure: Petition for Extension of Time